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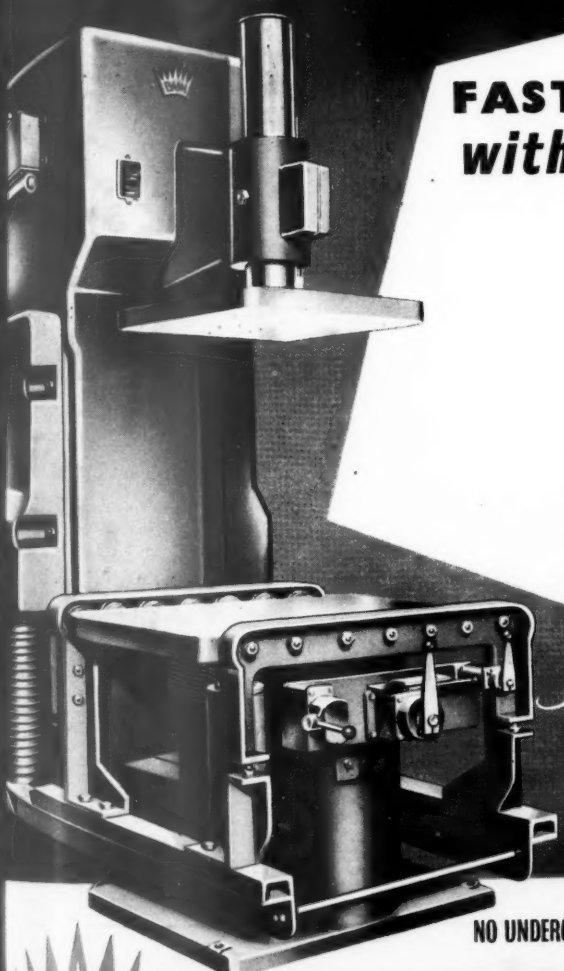

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Ironfoundry Statistics

The Census of Production* (1951) for ironfoundries has just been made available. To make it interesting, much arithmetic is required and the Council of Ironfoundry Associations has been very helpful in this matter. It has taken Table 8 of the Report, carrying the caption "Sales of the principal products of the trade, including sales of these products by establishments," and re-christened it "Sales value per ton." In this form it is of much greater value. From it we learn that the average selling price of dozens of types of castings listed (and varying from £367 down to £16.1 per ton) has increased during the period 1948 to 1951 from £48.1 to £54.5 per ton. (We shall now be able to answer those inane telephone enquiries demanding the current price of grey-iron castings!) How far the sales prices listed are comparable it is difficult to discern, but railway chairs at £16.1 per ton, even in 1951, would seem to indicate the supplier's eventual appearance in Carey Street, or leadership in the race for productivity.

Another table—number 4—which is of interest shows *inter alia* the value of the net output per person employed for the year covered. The table has eleven reportings ranging from foundries employing fewer than 25 people to those with 1,500 and over. It should be stressed that this value made by each employee is no criterion of efficiency, because amongst the largest concerns there is one mass-producing low-priced castings and moreover doing it remarkably efficiently. Heading the output value per person is the 400-500 employee foundry, at £726. The sole fact which we think can usefully be derived is that the smallest foundries listed (at £594 per person) show the lowest output value per employee, but for the next larger foundry—25 to 50 men—the output value per employee is raised by £33.

The major fault of the Census of Production Reports is that far too many of the figures relate to money values and spread over any period of years these serve no useful basis for comparison. Time was when one could buy a sheep or five cigarettes for a penny; these were not the same sort of pennies then and quite different from today's. Thus, Table 2 can be of use to manufacturers of various types castings, for herein is listed the production by weight for the years 1937, 1948 and 1951. The figures are strictly comparable and they will enable any one concern to compute the percentage of their share of the trade and thereby to ascertain whether progress has or has not been made. A high percentage of the matter printed in this Report has but little or no interest for the ironfounder to-day.

* Report of the Census of Production for 1951, vol. 3—Trade C Iron Foundries. Published by H.M. Stationery Office, York House, Kingsway. Price 2s. net.

Notes from the Branches

Lancashire

The annual dinner/dance of the Lancashire branch of the Institute of British Foundrymen was held on January 28 when 291 members and guests were present. The toast to the Lancashire branch was proposed by Dr. A. B. Everest, president of the Institute, who referred to the place the branch held in the national activities of the Institute and praised the work of the branch especially in the recent developments at Stoke-on-Trent. Mr. A. Kirkham, branch president, replied and congratulated Dr. Everest on his election to the vice-presidency of the International Committee of Foundry Technical Associations. He spoke of the pride with which Lancashire would regard Dr. Everest's taking the chair at the International proceedings in Stockholm in 1957, and wished him every success. Mr. W. S. Spenceley, branch senior vice-president, proposed the toast to the visitors, to which Mr. D. Bailey, M.A. (of Sir W. H. Bailey & Company, Limited), suitably replied. The proposal of the toast to the ladies was in the capable hands of Mr. G. C. Studley, and Mrs. A. Kirkham, in responding, warned the ladies sitting in the background—she had sat there in former years—that some time in the future they, too, might be called upon to respond to such a toast.

A gift of a silver dish to Mrs. Kirkham was presented by the branch secretary, Mr. F. W. Nield, and souvenirs were given to all the ladies present. In conclusion of the formal proceedings Mr. E. Beech, junior vice-president, proposed the toast to the secretary. The toastmaster was Mr. G. Lambert, the stewards for whist, Mr. E. Beech and Mr. R. Masterton, the reception stewards, Mr. F. A. Harper, Mr. E. Jackson, and Mr. R. Yeoman, and Mr. E. Beech and Mr. E. Jackson were in charge of the dancing arrangements. The organization of the function was in the capable hands of Mr. W. S. Spenceley, social secretary.

Beds and Herts

Nearly 100 attended the annual dinner of the Beds & Herts section of the London branch held at the Bridge Hotel, Bedford, on January 27; Mr. A. F. Hammond, the president, was in the chair. Mr. E. Daybell (past-president) followed the Loyal Toast with one to "the visitors." Particularly, he welcomed guests from overseas, amongst whom he named Mr. Ljungdell, Mr. Alexanderson and Mr. Nuth from Sweden; Mr. Hofhuis from Holland, and Mr. Y. P. Bhasin from India. The response was made by Mr. J. T. Hobkirk, president of the Association of Bronze and Brass Founders. Mr. F. Hudson, F.I.M., proposed the "Beds & Herts Section" and to this Mr. G. A. Smith (past-president of the section) replied. After dinner, the evening was concluded with light entertainment, Mr. L. A. S. Harbourne, M.C., being "master of ceremonies."

Owing to a continuance of the dispute in the printing industry, this issue of the JOURNAL is below normal size and apologies are again tendered to readers and advertisers.

Oxygen Plant for Tees-side

A tonnage oxygen plant to cost £500,000 is to be built at Middlesbrough by the British Oxygen Company, Limited, to supply oxygen and other industrial gases to Tees-side steel and chemical plants. In the first phase of operation, the total capacity of the new plant will be about 300 tons a day. Expected to commence production in the early part of next year, it will be the largest oxygen producing unit in the UK. The company is already building a 200-ton a day plant at Scunthorpe to serve the steelworks in the area.

There are good prospects of further large oxygen plants being built in the near future in other large steel-producing areas. For instance, the Butterley Company, Limited, is constructing a £300,000 plant with a capacity of 200 tons a day for Stewarts and Lloyds, Limited, at Corby. Substantial increases in oxygen consumption in steelmaking have been recorded on the Continent in recent years, and UK steel companies have been studying ways in which more oxygen might be used in the British steel industry.

ADA Research Scholarship

In 1954 the Institution of Structural Engineers accepted an offer by the Aluminium Development Association of a research scholarship to the value of £400 a year to enable the holder to undertake research on some aspect of the application of aluminium alloys to structures: the scholarship is awarded in alternate years for a two-year period.

It is the intention of the institution to make the next award of this scholarship in 1956 with a view to the successful applicant commencing his investigations at the beginning of the university session in October. Entries for this year's scholarship close on March 31. The scholarship is administered by the Institution and further particulars and forms of entry may be obtained from its secretary at 11, Upper Belgrave Street, London, S.W.1.

Materials Prices Up Last Year

The overall level of wholesale prices of basic materials used in British industry (excluding fuel) gained a further 1.5 per cent. during December, bringing the rise throughout 1955 to just over 6 per cent. The Board of Trade's monthly index (June 30, 1949 = 100) stood at 155.4 at the end of the year, compared with 146.4 at the end of December, 1954.

Prices of materials used in mechanical engineering and the electrical machinery industry showed rises in December over the November level, and finished the year higher than at the end of 1954. The price of fuel used in manufacturing industry, according to a new index published by the Board of Trade, was almost 13 per cent. dearer at the end of 1955 than at the end of 1954. Fuels used in this index include coal, coke, electricity, gas, and liquid fuels.

Foremen's Training Course

A very few vacancies remain for this year's Foundry Foremen's Training Course organized by the Institute of British Foundrymen. The function is to take place at the Hotel Majestic, Harrogate, from Thursday, April 5, to Saturday, April 7. Those who have not yet made reservations but who wish to attend are asked to make arrangements immediately with Mr. G. Lambert, IBF secretary, St. John Street Chambers, Deansgate, Manchester, 3.

Cost of Dust Collection

Relative Efficiencies of Plant Available

In a Paper which Mr. C. J. Stairmand, B.SC., presented to The Institute of Fuel, entitled "The Design and Performance of Modern Gas-cleaning Equipment," the Author reviewed cyclone dust-collectors; electrostatic precipitators; fibre and fabric filters; four types of wet-washers; and sonic agglomerators. Graded efficiency curves were given to predict the overall de-dusting efficiency on any given dust by a method evolved by the Author and which was described in an appendix to the Paper.

Performance

In his summary of de-dusting performance, the Author said a convenient way of obtaining such a comparison was to determine the overall collection efficiency on a standard test dust. One such standard test dust used in certain of the ICI laboratories was grade W.C.3 silica powder,* which had a grading about the same as typical fly-ash from a modern pulverized-fuel boiler. The grading of this standard dust was given in Table I.

TABLE I.—*Grading of W.C.3 Test Dust.*

Size of grade, microns.	Percentage by weight in grade.	Percentage by weight smaller than top size of grade.
104—150	3	100
75—104	7	97
60—75	10	90
40—60	15	80
30—40	10	65
20—30	10	55
15—20	7	45
10—15	8	38
7½—10	4	30
5—7½	6	26
2½—5	8	20
< 2½	12	12

TABLE II.—*Overall Collection Efficiency on W.C.3 Test-dust.*

1	2	3	4
Apparatus.	Section.	Overall efficiency, per cent.	Efficiency at 5μ per cent.
Medium-efficiency cyclone	3.1	65.3	27
High-efficiency cyclone ..	3.1	84.2	73
Low-pressure-drop cellular cyclone	3.1	74.2	42
Tubular cyclone	3.1	93.8	89
Irrigated cyclone	3.1	91.0	87
Electrostatic precipitator	3.2	94.1	92
Irrigated electrostatic precipitator	3.2	99.0	98
Fabric filter..	3.3	99.9	>99.9
Spray tower	3.4	96.3	94
Wet impingement scrubber	3.4	97.9	97
Self-induced spray de-duster	3.4	92.5	93
Disintegrator	3.4	98.5	98
Venturi scrubber	3.4	99.7	99.6

Column three of Table II gave the (calculated) overall collection efficiency for the various dust collectors reviewed in the Paper. A further single figure of merit was given by the percentage efficiency at 5μ. Values taken from the appropriate grade-efficiency curves were given in column four of Table II.

These figures served to place the dust collectors in order of merit, at least so far as collection efficiency was concerned. A more useful assessment included some consideration of the cost of installing and running the plant; an attempt at such an assessment was made in the next section.

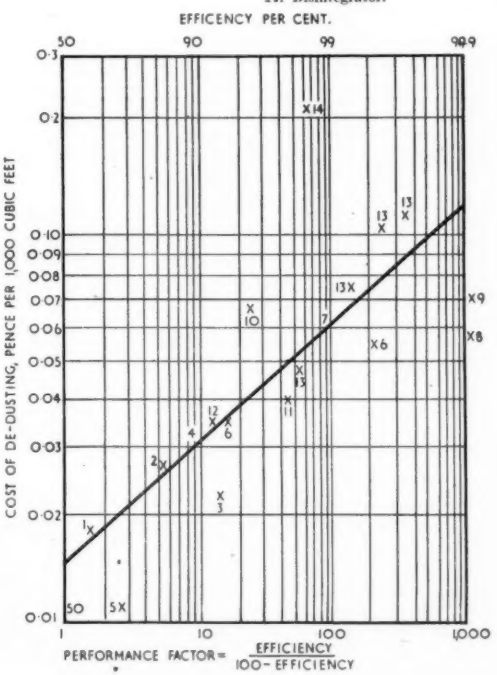
Cost of Dust Collection

The preparation of accurate cost figures for de-dusting installations was difficult since the figures varied considerably with the site conditions and with the size of the plant. Thus an order of merit for a given size of installation might be entirely changed when a plant of, say, three or four

FIG. 1.—*Relation between cost of de-dusting and efficiency.*

Key

1. Medium-efficiency cyclone.
2. High efficiency cyclone.
3. Tubular cyclone (cells 6-in. dia.)
4. Irrigated cyclone.
5. Low-pressure-drop cellular cyclone (cells 13-in. dia.)
6. Electrostatic precipitator (two designs)
7. Irrigated electrostatic precipitator.
8. Frame-type fabric filter (bags changed once per annum).
9. Reverse-jet fabric filter (bags changed twice per annum).
10. Spray tower.
11. Wet impingement scrubber.
12. Self-induced spray de duster
13. Venturi scrubber (four designs).
14. Disintegrator.



* Obtainable from Colin Stewart, Limited, of Winsford, Cheshire.

Cost of Dust Collection

times the size was considered. It was thought, however, that some sort of comparison would be of interest even if only for preliminary guidance. Table III had therefore been prepared for various plants, to deal with 60,000 cub. ft. per min. of gas at 68 deg. F., loaded with approximately 5 gr. per cub. ft. of dust, of the standard grading shown, in Table I. The notes appearing below the table were important and should be read in conjunction with it.

It would be seen from Table III that the cost of dust collection ranged from about 0.01 to 0.22 pence per 1,000 cub. ft. of gas cleaned, the cost rising rapidly for the higher efficiencies. While this was to be expected it was of interest to inquire whether any of the de-dusters were either much cheaper or much dearer than their performance warranted. In Fig. 1 the total cost of de-dusting, in pence per 1,000 cub. ft. of gas, was plotted against the performance factor:—

$$\frac{\text{Percentage collection efficiency on standard silica dust}}{\text{100—percentage collection efficiency on standard silica dust}}$$

that is,

$$\frac{\eta}{100 - \eta}$$

It would be seen that most of the points lay fairly closely on a straight line. The disintegrator (point 14) was far above the line, largely on account of its high power consumption, while the tubular cyclones (points 3 and 5) and the fabric filters (points 8 and 9) were below the line.

A rather surprising feature is that electrostatic precipitators (points 6 and 7) lie on the average line, and are not, as is sometimes asserted, unduly expensive in total cost, considering their performance.

Conclusion

It will be seen from the foregoing that de-dusters are available which will collect a fine industrial dust, containing 30 per cent. by weight of particles smaller than 10μ, with efficiencies ranging from 65 to virtually 100 per cent., at a total operating cost, including capital charges, from about 0.01 to 0.22 pence per 1,000 cub. ft. of gas treated. The cost naturally increases with the de-dusting efficiency, though the relatively small-diameter tubular cyclones, and bag filters, are rather cheaper than their performance would suggest. Electrostatic precipitators, particularly for the higher efficiencies (exceeding 99 per cent. on the duty considered), tend to be cheaper than wet washers.

TABLE III.—*Approximate Costs of Various De-dusting Systems Treating 60,000 cub. ft. per min. of Dusty Gases at 68 deg F.*

Equipment.	Efficiency on standard dust, per cent. (1)	Capital cost, £. Total. (2)	Capital cost, £. Per cub. ft. per min. capacity.	Pressure-drop in. w.g.	Power cost, £ per annum. (3)	Water useage, gal. per 1,000 cub. ft.	Water cost, £ per annum. (4)	Maintenance, etc., £ per annum. (5)	Total running cost, £ per annum. (6)	Capital charges, £ per annum. (7)	Total cost, including capital charges. £ per annum.	Total cost, including capital charges. pence per1,000 cub. ft.	Overall equivalent pressure-drop, in. w.g. (8)
Medium-efficiency cyclones	65.3	3,300	0.05	3.7	1,690	—	—	60	1,750	330	2,080	0.017	4.6
High-efficiency cyclones	84.2	6,300	0.10	4.9	2,260	—	—	60	2,320	630	2,950	0.025	6.4
Tubular cyclones	93.8	6,900	0.11	4.3	1,980	—	—	60	2,040	690	2,730	0.023	5.9
Irrigated cyclones	91.0	7,800	0.13	3.9	2,030	4.0	660	150	2,840	780	3,620	0.029	7.0
Low-pressure-drop cellular cyclones	74.2	5,600	0.09	1.4	655	—	—	60	715	560	1,275	0.011	2.7
Electrostatic precipators	94.1	30,700	0.51	0.6	620	—	—	250	870	3,070	3,940	0.033	7.6
Irrigated electrostatic precipitators	99.0	52,800	0.88	0.6	1,120	2.5	440	400	1,960	5,280	7,240	0.060	14.0
Frame-type fabric filter	>99.9	17,600	0.29	4.0	1,880	—	—	3,180*	5,060	1,760	6,820	0.057	13.2
Reverse-jet fabric filter	>99.9	17,000	0.28	5.0	3,990	—	—	2,700†	6,690	1,700	8,390	0.070	16.2
Spray tower ..	96.3	18,300	0.30	1.4	2,375	18.0	3,300	300	5,975	1,830	7,805	0.065	15.0
Wet impingement scrubber	97.9	10,300	0.17	6.1	2,900	3.0	550	300	3,750	1,030	4,780	0.040	9.2
Self-induced spray de-duster	93.5	8,700	0.15	6.1	2,820	0.6	110	200	3,130	870	4,000	0.033	7.7
Venturi scrubber	99.7	15,000	0.25	22.0	10,570	7.0	1,210	300	12,080	1,500	13,580	0.11	26.2
Disintegrator ..	98.5	23,800	0.40	—	22,700	5.0	850	200	23,750	2,380	26,130	0.22	50.5

(1) See Table I.
(2) Includes fans, pumps, motors and erection. Corrected to 1955 values.
(3) Cost of electrical energy assumed 1.2d. per kwh. Fan and motor efficiency taken as 60 per cent.
(4) Cost of water assumed 0.15d. per 100 gal.
(5) Estimated figure.
(6) Assuming 8,000 hours' operation per annum.
(7) Taken as 10 per cent. of capital cost.
(8) Total annual cost expressed as power usage.
* Includes complete change of bags once per annum.
† Includes complete change of bags twice per annum.

Co-operation between Engineer and Foundryman on Casting Design*

Discussion of the Paper by G. Blanc and M. Jaumain

Following a "stop-press" announcement as to the way in which design recommendations were being adopted by one enlightened French firm when buying steel castings, the discussion mainly concerned the advisability of adopting the French "Guides" for English translation. Individual contributions to the discussion related design features to a patternmaker's problems; queried whether foundries should be controlled by metallurgists, engineers or foundrymen; requested knowledge as to what was envisaged for the non-ferrous section of the industry, and postulated that more foundrywork should be taught to engineering students. The chairman of the Institute of British Foundrymen's own design sub-committee (T.S.50) gave his views on the French work and the objectives for the British work in the same field.

At the meeting of the London branch of the Institute of British Foundrymen held last autumn, the branch president, Mr. F. Hudson, F.I.M., from the Chair said the subject of the lecture for the evening was "Co-operation between Engineer and Foundryman on Casting Design," to be presented by Mr. G. Blanc and Mr. M. Jaumain (of the *Centre Technique des Industries de la Fonderie*, France). Before the lecture, however, a film on the subject of design would be presented, occupying about 15 minutes. The branch president explained that he was keen to show as many films as possible on the subjects to be discussed at the meetings. Quite a long film had been prepared by the Organization for European Economic Co-operation, for the Italian foundry industry; it consisted of four or five parts, and he had picked the second part, which dealt with design and patternmaking. The sound track was in Italian, and he would not record it; but he had a British translation of it, and he intended to try to synchronize that translation as the film was shown. He felt that the film would create the right atmosphere for the subsequent remarks of the lecturers.

The film was then shown.

President's Introduction

Introducing the lecturers, the BRANCH PRESIDENT said all would agree that co-operation in design between engineers and foundrymen was a crying necessity to-day. In that respect foundry friends in France had probably made more progress than any other country in the world, and Mr. Blanc and Mr. Jaumain were the leading exponents of the subject in France; Mr. Blanc, who would act as spokesman at the meeting, was the director of research of the *Centre Technique*, and Mr. Jaumain was the head of its Steel Casting Division. The French had published two books setting out desirable rules for co-operation and indicating a logical approach to the "do's" and "don'ts" of design. It was felt that it was from that aspect that the London members and the Institute generally could gain most.

To widen the interest of the discussion, the branch had invited to the meeting the Institute's sub-committee on design, headed by its chairman, Mr. J. Blakiston, and members of the National Society of Master Patternmakers, headed by their president, Mr. B. Levy. In welcoming them the president said that quite a few of these gentlemen had travelled quite long distances to be present. On behalf of the branch, he welcomed Mr. Blanc and Mr. Jaumain, and invited the former to deliver their lecture.

"Stop Press" News

MR. V. C. FAULKNER (past-president of the Institute and of the London branch), at the conclusion of the lecture, said he had been asked by Mr. Jaumain to give "stop-press" news. Concentrating on what he considered to be the most important outcome of the "Guides" mentioned in the lecture, he urged that it was desirable to consult the *Centre Technique* or its English equivalent on all new or changed designs. It was worth noting that a large electric power company in France, the Rhône National Company, now insisted that the designs for the steel castings it used were approved by the *Centre*. Moreover, the methods of running and risering in the foundry were also approved by the *Centre*. So that already the "Guides" had had a practical effect in so much as their use was insisted upon by some big customers.

Current Problems

MR. B. LEVY (president of the National Society of Master Patternmakers, and past-president of the London branch of the IBF) complimented the lecturers on a very helpful Paper in a language other than their own. Discussing some of the points raised, he said Mr. Blakiston had indicated to him that one of the French "Guides" drew particular attention to the point that money spent on a good pattern was well spent; and he asked foundrymen to take particular notice of that, for there was a tendency for many engineers and some foundrymen,

* Paper printed in the JOURNAL, January 19.

at least in Great Britain, to think that more than the minimum spent on a pattern was money thrown away.

There obviously existed a misunderstanding on the part of many designers that what was a suitable design of casting and pattern equipment—and he emphasized the latter—for making in iron was also quite suitable for steel and non-ferrous metal—this notion was often wrong. He suggested that an English " Guide " which dealt with that point would be of great use in the foundry world.

Another aspect of casting design was the possibility of breakdown of a complicated casting into a number of separate castings. He knew, for example, that after having attempted to make a very complicated casting for a certain machine-tool the designers had decided to break down the design into several pieces. It was the patternmaker's job to produce equipment that would somehow produce the casting required; it was not equally his job to control the design, although on many occasions he did his best to demonstrate to the designer that certain modifications—not always drastic ones—were desirable and necessary.

Another present-day tendency, particularly in machine-tool design, was to change to the box-type or cored-type castings, and again it was desirable that designers and machine-tool builders, or indeed those concerned with any pieces of equipment, should remember that pattern equipment and castings cost more when they were cored.

Finally, on the question of " soap-box " patterns —to use Mr. Blanc's description—Mr. Levy suggested that the Authors should watch out for the publication of British standards on which the National Society of Master Patternmakers were working, in conjunction with the British Standards Institution and many other bodies. They hoped in the not too-distant future to bring out standards, particularly for wooden pattern-equipment.

MR. PENDREY said it would be interesting to know the titles of the two books referred to in the lecture. He had been amazed, he added, by the facility with which the lecturers were able to discuss technical matters so freely in the English language.

He queried whether an engineer or a metallurgist should have charge of a foundry. Apparently the tendency in America was to have an engineer in this capacity, whereas the British practice was to appoint a man having a fairly good metallurgical knowledge. From the Paper it would appear that the French favoured the appointment of an engineer because he would bring the users' requirements to the fore and facilitate manufacture. Mr. Pendrey asked if the lecturers agreed that this was so.

THE BRANCH PRESIDENT pointed out that specimens of the books referred to were exhibited at the meeting so that, after the meeting, the members could see them and note the titles and contents.

Translation Desirable ?

MR. J. F. B. JACKSON, adding a personal expression of welcome to the lecturers, suggested that the lecturers had been all too modest in describing the two guide-books. It had been his business at one time to know what publications were available on this particular topic, especially in relation to steel castings, and he knew of none which, in clarity and thoroughness, came anywhere near to those produced by the *Centre Technique*.

It seemed a pity that translations of the *Centre's* publications were not available in this country. He was aware that a number of research associations had toyed with the idea of producing comparable guide-books on casting design, but to him it seemed a waste of time to try to improve on those produced in France. Translations were needed quickly; and if the research associations, or institutes, or any other bodies with finance available for such a purpose could help, it would be a very useful thing for them to do.

Commenting on the Authors' reference to engineers not receiving kindly the suggestions made for the re-designing of castings to make them more satisfactory from the production standpoint, Mr. Jackson said his own experience had been rather to the contrary. Perhaps he had been fortunate, but for some years now he had noticed a marked tendency for engineers to be prepared to re-design castings and to accommodate foundrymen's wishes. He had heard many engineers say that if only the foundrymen would say what was wanted, they would be very glad indeed to design accordingly. In other words, the foundryman in turn had been accused of being inarticulate in regard to his requirements.

MR. G. B. JUDD, on the question as to whether a metallurgist or an engineer should be in charge of the foundry, expressed the view that if the foundry were to make money the man in charge should be an accountant. He knew an accountant in charge of a foundry which was very prosperous. If, however, a foundry were principally intended to make castings and not money, then he suggested that a patternmaker would be as good a choice as a metallurgist or an engineer.

MR. K. MARSHALL (director, Joint Iron Council) said that if it were generally felt that a translation of the guide-book on Grey-iron Castings Design would really be in demand, and if it could be produced in time, he thought that he would be permitted to say that the Joint Iron Council would be ready to provide it, but there must be a recommendation from that or other competent meeting that such a course was advisable.

MR. G. C. PIERCE (past branch-president) said how very much he had enjoyed the lecture. Commenting on the making of propeller blades referred to, he asked if the method described was the standard method used in France, then it seemed very much opposed to the method used in this country. Next, he feared that the kudos given that evening to patternmakers might not all be deserved. Finally, he suggested that the best man to take charge of a foundry was, in fact, a foundryman.

THE BRANCH PRESIDENT, commenting on Mr. Pierce's reference to the method of making propeller blades, said that if he had in mind the method

shown in the film, then it should be pointed out that the film came from Italy and was included solely to create additional interest. The lecturers themselves had not seen the film until that evening.

Sub-committee's Viewpoint

MR. J. BLAKISTON (junior vice-president of the Institute) congratulated the Authors on their very able treatment of the subject. The matter was of considerable interest to him as chairman of the Institute's technical sub-committee TS50, which was formed to create a code of practice for casting design applicable to all sections of the foundry industry. The publications by the *Centre Technique* had been studied with attention and the sub-committee hoped that eventually they were going to produce an even better one; but probably they would not have had such high ideals had it not been for the French publications. The sub-committee had decided only that day more or less how they would tackle the job; and it might be necessary, with the permission of the French, to incorporate some of the subject matter of their publications. He agreed that a translation would be of very great assistance to the sub-committee.

During their deliberations, the sub-committee had concluded that the problem was not so much one of research as to the correct design of castings as one of indexing the vast fund of knowledge and information already available. They had browsed through 70 or 80 articles and other publications on the design of castings, covering every branch of the industry, and from some of them, although they were not equal to the French publications, the sub-committee had obtained some very valuable information. Apparently there was much information which was lost through lack of proper indexing, and it was hoped to collect this and present it to the industry in such an attractive form that it would be used by designers, as a textbook in technical colleges, and would find a place in foundries. Although some might say that it was not of much use preaching to the converted, it should be useful at least to those who were to some extent ignorant of the fundamentals of casting design.

The question as to who should run a foundry, he suggested, should be considered in a logical way, as was the practice of the French. The foundry existed to make money through the production of castings, and whoever could run a foundry and could make both money and castings was succeeding in making the foundry achieve its purpose.

MR. R. E. BOONE, enlarging upon Mr. Marshall's remarks, said he felt most strongly that these publications should be translated into English and made available as soon as possible in this country for foundrymen and engineer designers. Not only did he feel that they would satisfy an immediate urgent need, but that English translations would greatly assist the members of sub-committee TS50 in their work. They would at least make it very clear what was necessary to improve on the French work. Founders ought not to worry about accepting such help from abroad, he felt a valuable lesson could be learned from the German car company which supplied all their executives with British-made cars. He was a member of the sub-committee TS50 because, for some time, he had been worrying the Council of Ironfoundry Associations to spend money on this project; when the sub-committee had been formed the CFA had suggested he should represent them on the sub-committee.

MR. JACKSON asked Mr. Blakiston what he had meant when he had said that the sub-committee hoped "eventually" to produce a code of practice. Such a publication was obviously an admirable objective, but would it be available this year, next year, or when?

MR. BLAKISTON replied that the sub-committee had only been in existence nine months and already had several meetings; good progress was now definitely being made. The sub-committee would welcome criticism from any direction, as the proposals if published must be right, even though criticism necessitated the re-drafting of the report several times. The final results should be very worthwhile. At a rough guess, he thought the date of completion should be about 18 months hence.

Non-ferrous Aspects

THE BRANCH PRESIDENT said the *Centre Technique* had published booklets on the design of steel and iron castings, and asked if it were intended to publish one on non-ferrous castings.

MR. BLANC replied in the affirmative.

MR. HUDSON, continuing, said he felt that when that publication came to be considered, it might be necessary to give a lot more consideration to some of the metallurgical characteristics of design. He went on to give some idea of some new work he had been doing in connection with the properties of copper-base alloy castings. For many years he had suggested that 85/5/5/5 gunmetal, for example, was one of the best alloys one could use for the production of castings which had to withstand pressure. That had been confirmed by the work done by the British Non-Ferrous Metals Research Association, but in making that statement they perhaps had forgotten to take into account the effect of section thickness on mechanical properties, and he wondered what happened when a casting 2, 3, or 4 in. thick was made. At the moment his firm's laboratory staff were doing some work in this direction using step-bar castings, and it had been found that in 85/5/5/5 gunmetal the tensile strength dropped from around 16 tons per sq. in. in a section ½-in. thick to about 7 tons per sq. in. in a section 4-in. thick. Not all designers realized that.

Using test-pieces of the same dimensions, cast in 88/10/2 gunmetal, the strength was about 20 tons in a section ½-in. thick, and 16 tons in the 4-in. thick section. He believed that section thickness played a more important part in non-ferrous metals than it did in steel or cast iron.

PROFESSOR JUNGBLUTH, who was on a short visit to this country, was warmly welcomed to the meeting by the branch president, who invited him to join in the discussion. He said he had not made experiments with stepped bars on ferrous metals,

but with bars of different diameters, and it had been found that the test-bar was much more representative of the metal than a test-piece cut from the casting itself. He asked how that worked in the case of gunmetal.

THE BRANCH PRESIDENT replied that he and his colleagues had found it too costly to take test-pieces from actual castings, so they had tried to reproduce a test-casting which might be representative of commercial requirements. The stepped-bar he had mentioned was fairly massive and had required about 84 lb. (nearly 40 kg.) of metal to cast.

MR. W. G. MURRAY, commenting on what Mr. Blakiston had said concerning the engineer's knowledge of the foundry industry, drew attention to the point that in this country, in connection with National Certificate courses in mechanical engineering, no real allowance was made for foundry subjects, other than a possible one lecture, in the metallurgy course for engineers, on the influence of design and section-thickness on the structure of castings. He wondered whether something more than that could be done for student engineers, and asked the lecturers what was the system in France.

MR. V. C. FAULKNER pointed out that in connection with the Higher National Certificate for mechanical engineers there was an endorsement for successful students taking foundry technology subjects. It was not used much, but it did exist, and it was up to the foundrymen to make it better known.

Authors' Replies

MR. BLANC said that he and Mr. Jaumain were very glad that so many questions had been raised. If he attempted to answer them all, the meeting would continue until midnight, for they were so interesting and required so much comment. Therefore, he dealt with only a few, leaving others for a written reply.

The core method of construction was one of the most important points. He had given only some extracts from the French guide-books concerning that matter, but the problems of cores had been set out very thoroughly therein.

The question of translating the books was a matter for British foundrymen to discuss. He and his colleagues were prepared to help in that connection if desired, assuming the books would be useful in this country. He was afraid that if it were intended to produce one book to cover the casting of all metals it would be a very large book. In France it was intended to produce two more booklets, one dealing with copper-base alloys and the other with light alloys. They would involve very much work; for example, the booklet covering copper-base alloys would have a chapter on aluminium-bronze, which would be altogether different from chapters on gunmetal or bronze. If one only had to consider bronze, which would be the simplest, then considerations would include pouring and all the preparation, and it would probably constitute a real course of study on the metallurgy of bronze. Even considering just one metal, much depended on what was required; a casting having the best tensile strength, for instance, might not be the best for pressure-tightness.

On the point that the purpose of a foundry was to make money, he said that all would agree. But was not the best method also to give good service? The important point was, from both sides, to know what the other fellow wanted. In some cases perhaps shrinkage cavities would not do any harm, and it was not necessary to take additional precautions to avoid certain defects which had no importance when the casting was in use. He felt that British founders well understood the point of view of the other fellow, as they did in engineering generally; there had, in fact, been much advancement in that direction in the foundry industry.

This reference to giving service led him to the question as to whether it was better to have a foundryman in charge of the foundry than an engineer, or *vice versa*. He felt that sometimes it was better to have an engineer and sometimes better to have a foundryman. There could be appointed, for instance, a good consulting engineer in mechanics. But the question was a difficult one to answer; personal attributes had an important bearing. Also, an attempt should be made to ensure that there were certain lectures on foundrywork included in engineers' training courses. However, co-operation in any way was good, not only within a country, but also between countries.

Vote of Thanks

MR. FAULKNER, proposing a hearty vote of thanks to the lecturers, said Mr. Blanc had been very courageous in addressing the meeting in a language foreign to him; he had given his audience much to think about, and he had also put them in a position to say definitely whether or not they wanted translations of the guidebooks produced by the *Centre Technique*. Mr. Marshall had said that the work could be done, and it was up to the meeting to decide what was wanted. Those attending the meeting were most grateful to Mr. Blanc and Mr. Jaumain for their kindness and courtesy in coming to England and addressing the meeting; they had given their audience a great deal of pleasure.

MR. R. W. RUDDLE, seconding, added his tribute to the Authors for an admirable lecture, the success of which could be measured by the lively and interesting discussion. The discussion had also shown how valuable were the guidebooks which Mr. Blanc and his colleagues had produced, and on behalf of the branch he thanked them for coming to London to give this most interesting lecture.

(The vote of thanks was warmly accorded.)

THE BRANCH PRESIDENT concluded the proceedings by asking members present to indicate by show of hands whether they wanted a recommendation to go forward that a translation of the guidebooks produced by the *Centre Technique* should be prepared. The meeting showed itself unanimously in favour of such a recommendation.

Supplies and Equipment

Roughness Standards

Philips Electrical, Limited, Century House, Shaftesbury Avenue, London, W.C.2, announce the development of precision-machined calibration standards which will enable their PR.9151 roughness tester to provide more precise measurements of surface finish. The four comparative standards supplied are used for fixing the calibration points at 125, 32, 8 and 2 micro-inches, respectively, and are, in every case, individually calibrated by Talysurf measurement. Generally, the maximum error on roughness tester readings is only ± 10 per cent., and this can be reduced by the operator with practice. The tester itself is mains-driven, electronically operated, and sufficiently portable to be taken into a workshop; it can be operated by the average machine hand after a short period of instruction. The measuring pick-up, less than the size of a cigarette, can be inserted into tubes with an internal bore of $\frac{3}{8}$ in., and its smallness enables constant checks to be taken on the most complicated components without removing the casting from the machine.

FIG. 1.—*Precision machined calibration standards for the Philips roughness-testing instrument.*

Atmosphere Control for Furnaces

The Equiverse system of atmosphere control for direct-fired forge and reheating furnaces is introduced in a booklet published by the Incandescent Heat Company, Limited, Smethwick.

It is claimed that a furnace equipped with this system combines the attractive advantages of increased output per unit hearth area and less fuel-consumption per weight of metal heated, together with scale-free heating at temperatures up to 1,300 deg. C. or higher. Equipment for automatic control of the furnace atmosphere is available; automatic temperature control is optional, but strongly recommended.

Eye Protection

A new item in the range of protective equipment manufactured by Panorama, Limited, 29-36, Seymour Mews, Wigmore Street, London, W.1, is the TGS 1 toughened-glass spectacle. Triplex glass lens with high impact resistance are carried in a transparent plastics frame. All-round protection is provided by built-in side-shields, which are ventilated to prevent misting. While of light weight and comfortable to wear, the spectacles comply with BS 2092:1954 (heavy duty). The collapsible side arms are adjustable, so that only one size has to be stocked. They fit easily into a pocket and can be worn over ordinary spectacles.

Book Reviews

Principles of Metal Casting, by R. W. Heine and P. C. Rosenthal; published by McGraw-Hill Publishing Company Limited, 95 Farringdon Street, London, E.C.4. Price 56s. 6d.

This volume is noteworthy in that it is published with the blessing of the American Foundrymen's Society; unfortunately the authors have attempted to deal with too much material in a small space. The technology and metallurgy of castings production are alike quite extensive, and in a book of the size under review some lack of balance in treatment is inevitable. Magnesium alloys are treated in some detail while the no less important alloys of nickel, zinc, tin and lead are not given equal attention. None of the standard mould production methods are neglected yet the relative importance of each should be indicated for the guidance of students. American books of this nature are intended to deal mainly with current practices in the United States, but they will always have a wide circulation abroad. European students may readily gain misleading impressions owing to the somewhat insular method of treatment. The wealth of French and German literature of foundry interest may not be accessible to many students reading this book, but no text printed in English and dealing specifically with modern foundry metallurgical practice can reasonably exclude reference to appropriate British work. The valuable contributions to scientific and technical knowledge which have been made by workers at the British Cast Iron Research Association, British Non-Ferrous Metals Research Association, and by the various licensees of Magnesium Elektron Company, at least merit acknowledgment.

Running and feeding methods are given detailed consideration; great progress has been made in this field during the past 30 years, but much remains unknown where the effects of alloy constitution and casting designs are concerned. The problem should be very clearly stated if students are not to be misled to some extent. A more extensive treatment of furnace-charge calculations and of the principles of alloying would be welcome in a book of this nature. Casting rectification or repair is of interest to foundry personnel; a systematic discussion of the principles involved and the main techniques used would be a valuable addition. Casting finishing processes, notably vitreous enamelling, should be outlined, since a broad summary of these techniques and their applications is not available elsewhere. Some excellent line drawings appear in this book and are preferable to the other illustrations which often lack the clarity essential for instructional purpose. This book is good value for money, and subject to the omissions outlined above can be welcomed as an addition to the quite short list of modern foundry textbooks now available.

J.B.Mc.I.

Marine Propellers

The 24th Andrew Laing lecture of the North East Coast Institution of Engineers which carried the title "Ferrous Materials in Marine Engineering," was delivered by Dr. S. F. Dorey, C.B.E., F.R.S. In it there was a section devoted to propellers, reprinted below :—

Cast-irons retain a predominance over other ferrous materials for propellers. Low-alloy irons containing principally nickel and molybdenum are also in service, the higher strength of these irons permitting some reduction in the scantlings of the propeller. During the past five years a number of spheroidal-graphite-iron propellers have also been cast. In service, however, the erosion resistance of low-alloy and spheroidal-graphite irons have proved little better than ordinary grey irons.

None of the cast-iron propellers considered is fitted to a ship which navigates in ice. For many years medium-carbon steels (26 to 35 tons per sq. in.) have been preferred. This material is found to a limited extent in propellers for general service. Tougher steels are used for the propellers of ships in ice-breaking service. Either a nickel-vanadium steel (carbon 0.18 per cent., nickel 1.5 per cent., vanadium 0.15 per cent.) or a 3.25 per cent. nickel steel have both proved satisfactory.

Alloy Steels

Stainless steels were first introduced as propeller alloys 25 years ago when an unstabilized 18/8 steel was used for castings up to about 6-ft. 5-in. dia. This alloy proved unsuitable for propellers of larger diameter. Later British practice, employing a titanium stabilized 18/8 steel heat-treated by air cooling from 1,050 deg. C. followed by furnace cooling from 700 deg. C., has produced propellers up to 12-ft. dia. The limitations imposed by the use of 18/8 steels, as well as the high cost, resulted in the development of suitable chromium-base ferritic steels. In Sweden, following extensive experiments, a 0.12 per cent. carbon, 13 per cent. chromium, 1 per cent. nickel, 1 per cent. molybdenum steel was adjudged the most suitable for propeller manufacture and has been used extensively for both small and large castings. In service these 13 per cent. chromium steels display a high resistance to corrosion and cavitation erosion. These and similar casting alloys are therefore employed for many other land and marine hydraulic components including pump impellers, water-turbine runners and Pelton wheels.

Service In Seawater

Essentially the problems which arise with iron and steel exposed to marine conditions comprise corrosion, erosion and abrasion. Wet abrasion represents the most serious combination of these factors. Under these circumstances wear-resisting steels corrode and the corrosion product is removed, continually re-exposing the virgin metal. Alternatively, corrosion-resisting steels mainly display lower wear-resistance and the protective surface film is also abraded, increasing the wear. Many steels have been tried, but none has given outstanding service comparable with a rubber lining. Many of the machinery components of dredgers, however, cannot be protected in this way and are cast in wear-resistant steels. These consist of the 13 per cent. manganese type, water quenched to give the austenitic structure, or high carbon (0.7 to 1.25 per cent.) chromium-molybdenum type steels fully hardened and tempered.

Firestone Tax Case

A tax appeal of considerable importance to British firms which trade abroad was decided in the High Court recently. The Firestone Tyre & Rubber Company, Limited, is a subsidiary of the American company, Akron. Firestone carries on business at Brentford, Middlesex, manufacturing and selling tyres. There is an agreement between Akron and Firestone that the latter shall fulfil orders obtained by Akron in Europe and elsewhere. Under this agreement, Firestone receives the price of the articles sold, keeps 5 per cent., and remits the balance to Akron. In respect of a transaction undertaken by Firestone on behalf of Akron to fill a Swedish order, the Inland Revenue authorities made two alternative assessments. The first assessment was on the basis that the sum received from the Swedish company was an ordinary trading receipt of Firestone. The second assessment charged Firestone as agents for Akron. On appeal, the Special Commissioners discharged the first assessment but confirmed the second.

Firestone appealed to the High Court, where Mr. Justice Harman said that in his view the contract for the sale of the goods was made in England. Even if he were wrong about that, it was not impossible to suppose that the trade was a trade exercised in England because the fulfilling of the order, the delivery of the goods, and the payment for them, were all done in England. Though the sale was by Firestone of its own tyres, it was performing Akron's obligations to the Swedish company. Akron performed its obligations through its agent, Firestone. That was how Akron did its business in Sweden and in those circumstances there was a business of Akron's being carried on in this country by its agent, Firestone. The appeal would therefore be dismissed.

This case derives its importance because the decision charges British tax on what was actually a business transaction between America and Sweden. Normally, contracts made outside the United Kingdom do not attract British tax. In this case, the use of a British company as a convenient supplier makes the transaction a British one, and as such liable to British tax. Whether or not Firestone can recover the British tax from Akron depends on the relations between the two companies and the terms of the agreement between them. As one is a subsidiary of the other, presumably there will be no difficulty about this. However, the case behoves all British companies or firms who act as agents (and this is a very wide term) for foreign firms, to see that their rights of recovery of such taxes against their principals are well safeguarded by agreement.

Recent Wills

TARRANT, R. F. G., managing director of the Dorset Iron Foundry Company, Limited, Poole £26,07

BURGESS, ALFRED, a partner in Burgess Bros., iron-founders, etc., of St. Helens (Lancs) £14,21

WALKER, E. B., a former director of Walker Bros. (Wigan), Limited, engineers and ironfounders ... £10,56

POWELL, R. S., managing director of Perkins & Powell, Limited, brassfounders, of Birmingham £7,53

JACKSON, R. O., a director of the Clay Cross Company, Limited, pig-iron makers and founders, of Chesterfield £109,15

HEWITT, H. D., a local director and general sales manager of Firth-Vickers Stainless Steels, Limited, Sheffield £12,39

TWEEDY, G. F., a director of Swan, Hunter & Wigham Richardson, Limited, and formerly a director of the Wallsend Slipway & Engineering Company, Limited £150,69

Company News

ENFIELD ROLLING MILLS, LIMITED—Approximately 96½ per cent. of the 118,750 £1 ordinary shares provisionally allotted were accepted in connection with the issue of 130,000 £1 ordinary at 62s. each. The excess shares were heavily oversubscribed and applications have been substantially scaled down, although every applicant will receive an allotment. It is announced that the company has now completed the purchase of the issued capital of the Watcliff Company, Limited.

BROOM & WADE, LIMITED, manufacturers of air compressors, pneumatic tools, rock drills, etc., of High Wycombe (Bucks)—A final dividend of 7½ per cent. for the year to September 30, 1955, recommended by the board makes a total of 10 per cent. on the present capital of £1,250,000. While the final of 7½ per cent. for 1953-54 was on this amount the interim of 5 per cent. was on £625,000 before a scrip issue of one for one. The group's untaxed profit has risen from £523,744 to £558,067.

BRITISH GLUES & CHEMICALS, LIMITED—Resolutions to effect a 50 per cent. scrip issue will be put to a meeting on February 23. The issue will capitalize £420,000 of replacement reserve in the form of five 4s. shares for every £2 nominal of ordinary stock held on that date. The new capital will not participate in the interim, which is maintained at 5 per cent. for the year ending March 31, but will rank for the final dividend. The board contemplates recommending a final dividend of 11 per cent. on the increased capital of £1,260,000, making the total for the year equivalent to 21½ per cent. on the present capital of £840,000, on which last year's payment was 20 per cent.

METAL INDUSTRIES, LIMITED—In an interim statement the directors say they are unable to declare any interim dividend for the year ending March 31. A considerable loss has been sustained in the engineering and the electrical divisions. The loss incurred by Sentinel (Shrewsbury), Limited, is substantial. All the subsidiary companies are now in the charge of whole-time directors. The principal changes in the duties of the directors are that Mr. John Black becomes vice-chairman, Mr. E. Bruce Ball and Mr. J. T. Rymer are responsible for the engineering subsidiaries, and Sir Charles Westlake for the electrical companies. The cash requirements of the operating companies have proved greater than was envisaged. A private placing has been effected, therefore, of £600,000 of the holding of ordinary stock of the British Oxygen Company, Limited, at a price which the directors regard as satisfactory and leaves the company's holding at £1,000,000 ordinary stock. The proceeds of the sale now made will augment the arrangements already made, with the consent of the CIC, for bank accommodation to the extent of £3,000,000.

Contracts Open

The dates given are the latest on which tenders will be accepted. The addresses are those from which forms of tender may be obtained.

MORECAMBE AND HEYSHAM (LANCS), February 24—Cast-iron pipes and specials for the year commencing April 1, 1956, for the Town Council. The Borough Engineer, Town Hall, Morecambe and Heysham.

ATHERTON, MANCHESTER, February 27—Iron castings, including manhole covers and street gullies for the year ending March 31, 1957, for Atherton Urban District Council. The Surveyor, Town Hall, Atherton.

BARNSLEY (YORKS), February 17—Cast-iron manhole covers and gulley gratings for the 12 months ending March 31, 1957, for the Borough Council. The Borough Engineer and Surveyor, Town Hall, Barnsley.

New Patents

(Copies of complete specifications are obtainable from the Patent Office Sales Branch, 25, Southampton Buildings, Chancery Lane, London, W.C.2, price 3s.)

742,121. Ford Motor Company, Limited, 88, Regent Street, London, W.1.

A process for the production of nodular-iron castings in which the magnesium-bearing melt is contacted during the casting process with a refractory substance which includes a magnesium-type flux. The flux is separated from the group consisting of borax, fused borax, boric acid, alkali-metal fluoborates and mixtures comprising a double salt of magnesium chloride and an alkali-metal chloride. This process is claimed to substantially eliminate "cope defects" which have been found troublesome for crankshafts, as the inclusions making up the defects tend to congregate at the junction of the pin-bearing and cheek—precisely the location of maximum stress concentration.

743,250. British Brush Company, Limited, Wymondham, Norfolk, and G. H. Marwood.

Guards for work-tools such as rotary cutters and to provide a more effective guard for continuously running tools to which work-pieces are applied, for example, wood-cutting tools in patternmaking.

743,321. Langley Alloys, Limited, Station Road, Langley, Bucks.

A method for the production of aluminium-bronzes consisting of copper and from 8 to 12 per cent. aluminium with optionally up to 8 per cent. of any one or more of iron, nickel, cobalt or manganese. Up to 0.3 per cent. of antimony, arsenic, bismuth, chromium, lead, magnesium, phosphorus, silicon, tin or zinc may be present intentionally or as impurities.

743,340. J. P. P. Jones, 4, Midland Crescent, Finchley Road, London, N.W.3.

Foundry moulding-flasks which comprise side panels detachable at or near the corners of the flask whereby the flask size can be altered by fitting other side panels of different lengths. Modifications may include, for instance, the construction of the side panels in metal, or the springs may be replaced by other resilient means such as rubber pads.

743,348. Low Moor Alloy Steelworks, Limited, Low Moor, Bradford, Yorks.

Apparatus for pouring molten metal to be cast. It comprises a vessel for holding molten metal which has an outlet nozzle in the form of a tube of refractory material. This tube has a wall thickness of not less than $\frac{1}{16}$ in. and not greater than $\frac{1}{4}$ in. It is surrounded over at least a part of its length by an air jacket or heat-insulating material. The invention is not limited to bottom pouring vessels, but may be applied also to tilting or side pouring vessels. Two or more outlets may be provided in a single tundish or similar vessel for use in casting large or intricate sections or for use in multiple-mould, continuous or other casting machines.

743,381. H. G. Sommerfield, Limited, 8, Camden Road, London, N.W.1.

Improvements in rotary impellers (known as sand blasters). The object is to provide an impeller and blades which can readily be mounted and held securely against the action of centrifugal forces. The mounting means for the impeller blade is not subject to wear by abrading particles fed into the impeller.

News in Brief

BROOK MOTORS, LIMITED, announce that from February 1 their Leicester sales office will be removed to larger premises at 1, Saxby Street.

ROYAL COUNTIES AGRICULTURAL SOCIETY announce that the 1956 show will be held at Knighton, near Bournemouth and Poole, on June 20.

AN ORDER worth more than £1,000,000 for the supply of electric washing machines to Western Germany has been secured by Wilkins & Mitchell, Limited, Darlaston.

THERE was an international conference on "Human Relations in Industry" in Rome on January 29, at which 100 delegates from 12 nations were present.

THE WORK of adapting and equipping Granby, a large house which will be used by the Park Gate Iron & Steel Company, Limited, Rotherham, for training schemes, is nearing completion.

A GERMAN SURVEY team has estimated the Edremit iron-ore deposits in Turkey at 10,000,000 tons. Several German firms are said to have submitted bids for the construction of an iron and steel plant at Edremit.

FULMER RESEARCH INSTITUTE, LIMITED, Stoke Poges, Buckinghamshire, announce that they have established a liaison section, the purpose of which is to inform industry about the facilities available to establish closer contact with industry.

THE CONTROLLING INTEREST will be held by Atlas Steels, Limited, Welland, Ontario (Canada), in Atlas Titanium, Limited, a new company which it has formed in association with the Mallory Sharon Titanium Corporation, of Niles, Ohio, USA.

A NEW FACTORY costing £15,000 is to be built in Kilmarnock for the manufacture of knitting machine parts by Oswald Donner & Company, Limited. Site of the factory is off Western Road on ground scheduled for industrial development in the town.

To meet the demand in Australia for Wolf portable electric tools, a manufacturing company, Wolf Electric Tools (Australia) Pty. Limited, has been formed with a registered capital of £A.250,000. A new factory has been constructed on a site approximately eight miles from Sydney.

THE SIXTH International Mechanical Engineering congress is to be held in Paris from June 4 to 9. The theme of the congress is to be "Surface Treatment for the Improvement of Mechanical Properties and Protection against Corrosion." Details are available from the British Engineers' Association, 32, Victoria Street, London, S.W.1.

A GROUP of Canadian business men have arrived in this country for the purpose of inspecting heavy excavating machinery both under construction and at work on various sites. During their stay they will visit the Waterside Works of Ransomes & Rapier, Limited at Ipswich, manufacturers of excavators, mobile cranes, and contractors' plant.

A NUMBER OF SHEFFIELD EXPERTS have been to France to examine and see in operation machines that make gas from oil for use in steelworks furnaces. The trip was organized by Thos. Black, Limited, fuel suppliers, and among those in the party were Mr. C. A. Standley, fuel engineer to the firm, and Mr. L. Clegg, chief engineer of the National Industrial Fuel Efficiency Service.

RUSTON & HORNSBY, LIMITED, engineers, Lincoln, have arranged for Dresser Industries Inc. to manufacture and sell in the United States, the Ruston Mark TA gas turbines of the type now being produced in the firm's Lincoln factories. It is anticipated that this arrangement will enable the firm to secure a part in the United States market which would otherwise have been difficult to secure.

THE Joint Non-Ferrous Scrap Committee, which represents the National Association of Non-Ferrous Scrap Metal Merchants, the National Federation of Scrap Iron, Steel and Metal Merchants, and the Waste Trade Federation, has announced that it is not associated in any way with the new company called the Scrap Metal Market, Limited, the formation of which was announced last month.

Mr. ASHLEY S. WARD, chairman and joint managing director of Marshall Sons and Company, Limited, Gainsborough, says in a statement that important contracts for heavy-steel fabrication work have been secured in the boiler department since acquiring approval by Lloyds for Class I welding work and enquiries show promise for the future. The mechanized foundry of John Fowler at Sprotborough, near Doncaster, has had a most successful year.

THE annual dinner/dance of the National Brassfoundry Association was held at the Botanical Gardens, Birmingham, on January 25, with Mr. W. Percy McGeoch presiding. The toast of the "National Brassfoundry Association" was proposed by Mr. Eric M. Clayson, president of the Birmingham Chamber of Commerce, and responded to by Mr. R. P. Allday, president of the Association.

ARMOUR & COMPANY, LIMITED—a name mentally associated with the Chicago meat-packing industry—has established a factory, Hess Products, Limited, Littleborough, near Rochdale, Lancs, for the manufacture of cationic and nonionic chemicals. These materials enter into a wide range of industrial processes including those based on froth flotation. The sales department is centred at Armour & Company, Limited, G.P.O. Box No. 250, Lindsey Street, Smithfield, London, E.C.1.

FALLS FOUNDRY, Belfast, recently taken over by the Wellman Smith Owen Engineering Corporation, Limited, and now engaged on the manufacture of machinery for the steel industry, is sending skilled workmen to England for short periods of training in their new class of work. The first group of six machinists has already arrived and are working in the Corporation's main works at Darlaston, near Wolverhampton. Another group left Belfast last week.

PLANS by the Walsall firm of Metrosine Tools, Limited, precision gauge-and-tool manufacturers, to move its factory to Malvern have been abandoned because the highly skilled male employees prefer to remain in the Midlands. The view taken by the employees is that, should they lose their employment at Malvern, there would not be alternative jobs in the area offering similar rates of pay. The management has now decided to build new factory premises on the Alumwell Road Estate at Walsall which should be ready later this year.

THE EXHIBITS of Newman Industries, Limited, of Yate, Bristol, on stand No. H.17 at the Electrical Engineers' Exhibition—Earls Court, March 20 to 24—will range from ⅛-h.p. Elf fractional-horsepower motors to 120-h.p. slip-ring motors, and will include those designed for specific duties such as flameproof, industrial, British Standard dimension, gasworks and pump motors. To demonstrate the efficient sealing of the flameproof motors a special pump unit will be operating on the stand showing one of these motors pumping a cascade of water over itself.

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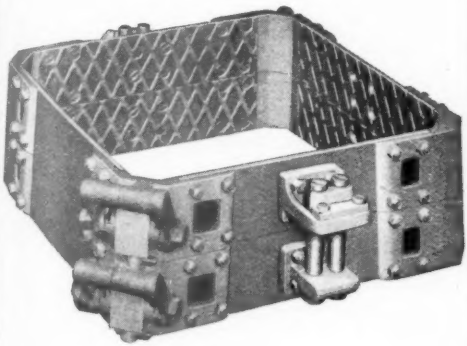

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Portrait in steel

PORTRAIT OF HARRY CHERRY, electric arc furnaceman in a steelworks in Sheffield. The steel he makes goes to every corner of the globe, in motor car and aero engines, in printing presses and in cutlery.

As the world's demand grows, British steelmakers increase their efforts to turn out steel of the quality and quantity needed. Behind these increased efforts are men of the calibre of Harry Cherry.

British steel leads the world

THE BRITISH IRON AND STEEL FEDERATION

Personal

Mr. JOHN BLACK has been appointed vice-chairman of Metal Industries, Limited, Glasgow.

Councillor EDWARD BARTLETT, who has been nominated by Warwick Town Council for the coming year as Mayor of Warwick, is a foundry worker at Leamington.

After 16 years at the Distington (Cumberland) works of High Duty Alloys, Limited, Mr. P. J. HAMMOND, personnel manager, has taken up an appointment at the company's headquarters at Slough (Bucks).

Dr. JOHN LAMB and Dr. J. H. WESTCOTT, both lecturers at the Imperial College of Science and Technology, have been appointed to London University readerships in electrical engineering tenable at the college.

After a short period of rest, Mr. VINCENT A. PASK, who recently retired as chief engineer of the Central Electricity Authority, is to take up new duties as consultant on power generation to John Brown & Company, Limited.

Mr. R. C. RHODES, who has been works manager of the engineering department of William Doxford & Sons, Limited, since 1952, is leaving to become managing director of Anderson's Insulation Company, Limited, Liverpool.

MR. M. M. HALLETT, of Chamberlin & Hill, Limited, Walsall, and MR. A. WYNN, of the Midland Electric Manufacturing Company, Limited, have been elected members of the Council of the British Cast Iron Research Association.

Mr. R. A. BALFOUR, managing director of Arthur Balfour & Company, Limited, the Sheffield steelmakers, who is now on a visit to Australia, has been made Chevalier de l'Ordre de la Coronne. The award has been made for Mr. Balfour's services as Belgian Consul in Sheffield.

MR. ALFRED DOW, director of studies in the training of junior journalists for the *Sheffield Telegraph* and *The Star* has been appointed public relations officer to Newton, Chambers & Company, Limited, Thorncliffe Works, Chapeltown, Sheffield. He has spent 33 years in Sheffield journalism.

To visit distributors and customers in Italy, South Africa, India, and Australia, Mr. J. F. GREENWOOD, sales manager of F. Taylor & Sons (Manchester), Limited, makers of hydraulic mobile cranes, etc., is leaving this country tomorrow and expects to be away for about two months.

The senate of Queen's University, Belfast, has decided to confer the honorary degree of Doctor of Science on Mr. J. ECCLES, deputy chairman (operation) of the Central Electricity Authority and president of the Institution of Electrical Engineers. He is a graduate of the university.

On the invitation of Indian National Metallurgical Laboratories, Mr. N. H. BACON, chief works metallurgist of the Steel, Peech & Tozer branch of the United Steel Companies, Limited, and Mr. J. F. SEWELL, liaison metallurgist, have flown to India, where they will both deliver addresses.

Dr. PERCY VENABLES, at present head of the Royal Technical College, Salford, has been appointed to the post of principal of the Birmingham College of Technology in succession to Mr. JAMES WILSON, principal since 1946. Dr. Venables is a member of the National Advisory Council for Education in Industry and Commerce and is chairman of the North West Regional Academic Board.

Mr. D. F. JONES has been appointed deputy superintendent of Her Majesty's Inspectors of Factories in the South Midlands Division with headquarters in Birmingham. He takes up his new duties on February 20. Succeeding Mr. BRAMLEY HARKER, who has been promoted deputy to Sir George Barnett, chief inspector, for more than five years, Mr. Jones has been deputy superintendent at Sheffield.

Consequent upon the control of Millspaugh, Limited, being acquired by Hadfields, Limited, the following appointments are announced: LORD DUDLEY GORDON has been appointed chairman of Millspaugh; MR. HAROLD HUMPHRIES becomes deputy chairman; and MR. W. JENKINS GIBSON is made financial director. MR. KARL F. LANDEGGER, MR. M. F. REID and SIR SEYMOUR HOWARD have resigned from the board.

Obituary

Mr. JAMES SHEARER, who has died at the age of 76, was a director of A. F. Craig & Company, Limited, engineers and ironfounders, of Paisley (Renfrewshire).

The death has occurred of Mr. JOHN DUNLOP, who was for many years an assistant manager of the North British Locomotive Company, Limited, Glasgow. He retired from the technical staff two years ago.

MR. ALFRED FARMER, founder member of Farmer Bros. (Gresley), Limited, iron, brass founders, and engineers, Castle Gresley, has died at the age of 86. The firm was established in 1893 and specializes in brick and pipe manufacturing machinery.

Mr. DAVID NEVILLE TURNER, formerly chairman of the Staveley Coal & Iron Company, Limited, died on January 27, at the age of 82. After education at Sedbergh School he qualified as a mining engineer and joined the company in 1920. He became a director in 1924, managing director in 1926, and chairman in 1941, and retired five years ago. Mr. Turner was a former High Sheriff of Derbyshire, and was made a county magistrate in 1917 and chairman in 1937.

DR. J. G. A. SKERL, who had been manager of Sternol, Limited, London, since 1936, died suddenly on January 31. From 1924 to 1935 he was on the staff of the British Cast Iron Research Association, and for his research work on British moulding sands he was made a Doctor of Science of London University in 1931. He was a member of the Institute of British Foundrymen, the Iron and Steel Institute, and the Institute of Metals, and a Fellow of the Institution of Metallurgists.

MR. CARL RAYMOND DAVIS, a past-president of the Institution of Mining and Metallurgy, who was for many years a director of the Anglo-American Corporation of South Africa, Limited, died in Capetown recently at the age of 82. Born in the United States, Mr. Davis was educated at Michigan College of Mines and the Colorado School of Mines and in 1905 took over the management of the Lancaster and Lancaster West Properties of A. Goertz & Company in the Krugersdorp district of the South African Rand. In 1911 he became general manager of the Brakpan mine, and seven years later was appointed consulting engineer to the Anglo-American Corporation of South Africa. He was later placed in charge of the development of the North Rhodesian copperfield and in 1928 became technical director of the corporation, settling in England so that he could keep in touch with the world-wide activities of the concern. The Institution of Mining and Metallurgy conferred its gold medal on Mr. Davis in 1946